the theorem of collection of object

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AI Overview

A collection of objects in mathematics is called a **set**, and the formal study of these collections is known as **set theory**, pioneered by Georg Cantor. Rather than a single "theorem," the foundational definition states that a set is any well-defined gathering of distinct objects, called elements.

Core Concepts of Sets

- **Elements**: The individual objects inside a set.
- **Membership**: Indicated by the symbol $\in$ (e.g., $x \in A$ means x is in A).
- **Empty Set**: A set containing no elements, written as $\emptyset$ or $\{\}$.
- **Subset**: A smaller set whose elements are all contained inside a larger set.

Important Theorems in Set Theory

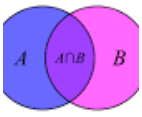
- **Cantor's Theorem**: Proves that the power set (the set of all subsets) of any set is always strictly larger in cardinality (size) than the original set, meaning infinity comes in different sizes.
- **Zermelo-Fraenkel Axioms (ZFC)**: The standard axiomatic system used to formalize collections of objects and avoid logical contradictions like Russell's Paradox.

If you had a **specific theorem** or **paradox** in mind (such as Cantor's diagonal argument or Russell's paradox), let me know and I can break it down for you!

Wikipedia

Set theory - Wikipedia

Set theory is the branch of mathematical logic that studies sets, which can be informally described as collections of objects. Alt...



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Set theory

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Class (set theory)

a class is **a collection of mathematical objects** (often sets) that can be unambiguously defined by a property that all its members share.

Mathematics Stack Exchange
https://math.stackexchange.com › questions › classifyin...

Classifying whether a collection of objects is a set

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https://plato.stanford.edu › entries › set-theory

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by J Bagaria · 2014 · Cited by 138 — **Set theory** is the mathematical theory of well-determined collections, called sets, of objects that are called members, or elements, of the set. Read more

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Chapter 1. Sets and Numbers

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A set is considered to be a **collection of objects** (elements). The **collection** of all subsets of X is called the power set of X, written as P(X). This completes ...

26 pages

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Set theory | Symbols, Examples, & Formulas

Jun 17, 2026 — **Set theory**, branch of mathematics that deals with the properties of well-defined collections of objects such as numbers or functions.

University of Illinois Urbana-Champaign
https://mfleck.cs.illinois.edu › sets-of-sets

Chapter 18 Collections of Sets

PDF

When a **collection** like B is the domain of a function, the function maps an entire subset to an output value. For example, suppose we have a function f : B → { ... Read more

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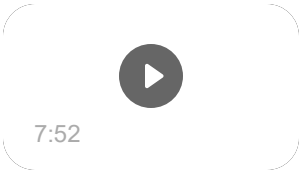
How To Determine Set from Collection of Objects - Set theory 4



If any **collection** or group of **objects** or elements or members are well defined then we can say they are sets otherwise not.

5 key moments in this video

Cornell University
https://courses.cit.cornell.edu › set

Sets

PDF

A set is a **collection of objects**. The **objects** of a set are referred to as the elements of the set. If S is a set and x is some element in S we write x G S. Read more

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